

1 WHAT IS CLAIMED IS:

2 1. A vehicle surroundings monitoring apparatus,  
3 comprising:

4 . frontal information detecting means for detecting at  
5 least solid object information in front of an own vehicle;

6 preceding vehicle recognizing means for recognizing  
7 a preceding vehicle based on said solid object information;

8 traveling path estimating means for estimating a  
9 traveling path of said own vehicle;

10 first evacuation possibility judging means for judging  
11 a first possibility of relative evacuation of said preceding  
12 vehicle when viewed from said own vehicle according to the position  
13 of said preceding vehicle and the position of said own vehicle;

14 second evacuation possibility judging means for  
15 judging a second possibility of relative evacuation of said  
16 preceding vehicle when viewed from said own vehicle according  
17 to information of solid objects other than said preceding vehicle;  
18 and

19 preceding vehicle evacuation possibility judging means  
20 for judging a possibility of relative evacuation of said preceding  
21 vehicle when viewed from said own vehicle based on said first  
22 possibility obtained from said first evacuation possibility  
23 judging means and said second possibility obtained from said  
24 second evacuation possibility judging means.

25

1     2.           The vehicle surroundings monitoring apparatus  
2     described in claim 1, wherein said frontal information detecting  
3     means detect road information in front of said own vehicle in  
4     addition to said solid object information and have traveling  
5     conditions detecting means for detecting a traveling condition  
6     of said own vehicle.

7

8     3.           The vehicle surroundings monitoring apparatus  
9     described in claim 1, wherein said traveling path estimating means  
10    estimate a first own traveling path based on said road information  
11    and estimate a second own traveling path based on said traveling  
12    condition and estimate a new own traveling path based on said  
13    first own traveling path and said second traveling path.

14

15    4.           The vehicle surroundings monitoring apparatus  
16    described in claim 1, wherein said first evacuation possibility  
17    judging means judge the possibility of the relative evacuation  
18    of said preceding vehicle when viewed from said own vehicle  
19    according to a longitudinal distance of said preceding vehicle  
20    from said own vehicle and a lateral separation of said preceding  
21    vehicle from said new own traveling path.

22

23    5.           The vehicle surroundings monitoring apparatus  
24    described in claim 1, wherein said preceding vehicle evacuation  
25    possibility judging means judge that when said preceding vehicle

1 exists further than a preestablished distance, there is no  
2 possibility of relative evacuation of said preceding vehicle when  
3 viewed from said own vehicle.

4

5 6. The vehicle surroundings monitoring apparatus  
6 described in claim 1, wherein said first evacuation possibility  
7 judging means provide a plurality of distance divisions in front  
8 of said own vehicle, establish left and right evacuation  
9 possibility judging regions around said new own traveling path  
10 at said respective distance divisions, and when said preceding  
11 vehicle exists in said evacuation possibility judging regions  
12 represent said first possibility as a first specified numerical  
13 evacuation possibility corresponding to said respective  
14 evacuation judging regions and said preceding vehicle evacuation  
15 possibility judging means judge that there is a possibility of  
16 relative evacuation of said preceding vehicle when viewed from  
17 said own vehicle, in case where the sum of said first specified  
18 numerical evacuation possibility exceeds a threshold value.

19

20 7. The vehicle surroundings monitoring apparatus  
21 described in claim 6, wherein said distance divisions are composed  
22 of a far distance division, an intermediate distance division  
23 and a near distance division.

24

25 8. The vehicle surroundings monitoring apparatus

described in claim 1, wherein when said preceding vehicle exists in a preestablished region in the vicinity of said new own traveling path, said first evacuation possibility judging means the sum of said first specified numerical evacuation possibility is cleared and when said preceding vehicle does not exist in said region in the vicinity of said new own traveling path and said respective evacuation possibility judging regions, reduce the sum of said first specified numerical evacuation possibility to make a judgment that there is a small possibility of relative evacuation of said preceding vehicle when viewed from said own vehicle.

9. The vehicle surroundings monitoring apparatus described in claim 1, wherein when a solid object moving forward and different from said preceding vehicle exists in a region in the vicinity of said new own traveling path, said second evacuation possibility judging means represent said second possibility as a second specified numerical evacuation possibility and add said second specified numerical evacuation possibility to the sum of said first specified numerical evacuation possibility so as to further enhance the possibility of relative evacuation of said preceding vehicle when viewed from said own vehicle.

10. A traveling control system for controlling a traveling

1 of an own vehicle at least based on said information extracted  
2 from said vehicle surroundings monitoring apparatus described  
3 in claims 1 of the possibility of evacuation of a preceding vehicle.

4